

1/11

POSITIONS SEQ ID  
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 216-391 31  
 194-368 30  
 1-178 33

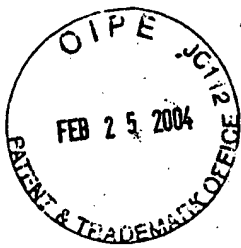
cons.aa	G G G V	A K	E
htGFBR-II	LDTLVGKGRFAEVYKAKLKQNTSEQFETVAVKIFPYDHYASWKDRKDI	FSDINLGHENILQF	
mActR-IIB	LLEIKARGRFPGCVWKAQLMN-----	DFVAVKIKPLQDKQSWQSEREIFSTPGMCHENILQF	
mActR-II	LLEVKARGRFPGCVWKAQLLN-----	EYVAVKIFPIQDKQSWQNEYEVYSIPGMCHENILQF	
daf-1	LTURVGSGRFGNVSRGDYRG-----	EAVAVKVFNAIDEPAFHKEIEIFETRMRLRHPNVLRY	
subdomains	I	II	III IV

htGFBR-II	LTAERKTELKQYWLITAFHAKGNLQEYLTRHVISWEDLRNVGSSLARGLSHLSDHTP-C
mActR-IIB	IAAEKRGSNLEVELWLITAFHDKGSLIDYLGNIITWNELCHEVETMSRGISYLVHEDVPWCR
mActR-II	IGAERGTSDVDLWLITAFHEKGSLSDFLKVNVSWNELCHIAETMARGLAYLHEDIPLGLK
daf-1	IGSDRVDTGFTLWLVIHYHPSGSLHDFLENTVNIETYYNLMRSTASGLAFLHNQIGGSK
subdomains	V VI-A

cons.aa	DLK N	DFG
htGFBR-II	GRPKMPIVHRDLKSSNLLVKNLTLCCCLDFGLSLRL---	GPYSSVDDLANSQGVGTARYMAP
mActR-IIB	GECHKPSIAHRDFKSKNVLLKSDLTAVLADFGLAVRF---	EPGKPPGD--THQGVGTTRYMAP
mActR-II	DGHKPAISHRDIKSKNVLLKQNLTAADIADFGALAKF---	EAGKSACD--THQGVGTTRYMAP
daf-1	ESNKPAPAHARDIKSKNIMYQDLTCAIGDLGLSLSKPEDAASDIAN--	ENYKCGTVRYLAP
subdomains	VI-B	VII VIII

Fig. 1

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a.a C C E G N M C

5' GCGGATCCTGTTGTGAAGGNAATATGTG 3' Fig. 2A SEQ ID NO: 19

BAMHI C C G C

a.a V A V K I F

5' GCGGATCCGTCGCAGTCAAAATTTT 3' Fig. 2B SEQ ID NO: 20

BamHI G C G G C

T T T A

a.a R D I K S K N

5' GCGGATCCGCGATATTAAAAGCAA 3' Fig. 2C SEQ ID NO: 21

BAMHI A C C GTCT

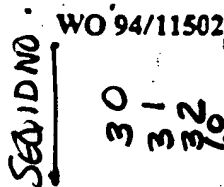
G A

a.a E P A M Y

5' CGGAATTCTGGTGCCATATA Fig. 2D SEQ ID NO: 22

EcoRI G G G

A A



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[illegible][illegible]

**Fig. 3**

SE21D  
No

30 31 32 10 2 4 9 6 6

30 31 32 10 24 26 28

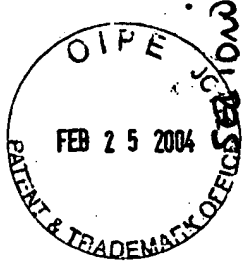
30 31 32 10 2 4 6 8 10

[illegible]

ACTR-II  
 ACTR-IIIB  
 T6R-II  
 T6R-I/ALK-S  
 ALK-1  
 ALK-2  
 ALK-3  
 ALK-4  
 ALK-6

ACCR-II  
ACCR-IIB  
TGR-II  
TGR-I/ALK-S  
ALK-1  
ALK-2  
ALK-3  
ALK-4  
ALK-6

**Fig. 3 contd.**



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16

Y G C V W K A Q L L M N - - - - - E Y A V K I F P I Q D K Q S W Q S E Y E Y S L P G M A C C R - I I  
F G C V W K A Q L L M N - - - - - D F V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I B  
F A E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
F G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I  
Y G E V V W K A Q L L M N - - - - - V A V K I F P L Q D K Q S W Q S E R E I F S I P G M A C C R - I I

III

II

K H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
K H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I B  
K H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I  
R H E M I L Q F I A A E K R G T S S V D V E L W L I T A F H E K K G S L S D F L K A M V V S W A C C R - I I

V

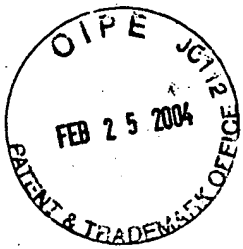
IV

M E L C H I A E T M A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
M E L C H I A E T M A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I B  
M E L C H I A E T M A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
E G M I K L A V L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
H S C L R I V L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
V S A L K L A Y L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
E G M I K L A V L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
K S M L K L A Y L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
K S M L K L A Y L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I  
K S M L K L A Y L S S L A R G L A Y L H E D I P - G L K D G C H K P A I S H R D I K S K M V L L A C C R - I I

VIB

VIA

Fig. 3 contd.



5810A0

30 31 32 10 2 4 6 8 15

K	M	N	L	T	A	C	I	A	D	F	G	L	A	L	K	F	E	A	G	K	S	A	G	D	-	-	T	H	G	Q	V	G	T	R	R	Y	M	A	P	E	V	L	E	G	ACTR-II			
K	S	D	L	T	A	V	L	A	D	F	G	L	A	V	R	L	F	E	P	T	L	S	V	D	D	-	-	T	H	G	Q	V	G	T	R	R	Y	M	A	P	E	V	L	E	G	ACTR-IIIB		
K	H	D	L	T	C	C	I	C	D	F	G	L	A	V	R	L	F	E	P	T	L	S	V	D	D	-	-	T	H	G	Q	V	G	T	R	R	Y	M	A	P	E	V	L	E	S	TBR-II		
K	K	N	G	T	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	D	TBR-I/ALK-5
K	5	N	L	Q	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	E	ALK-1
K	K	N	G	S	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	E	ALK-2
K	K	N	G	S	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	E	ALK-3
K	K	N	G	S	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	E	ALK-4
K	K	N	G	S	C	C	I	A	D	L	G	L	A	V	R	H	S	Q	S	A	G	S	I	D	I	D	I	A	N	S	C	H	R	V	G	T	K	R	Y	M	A	P	E	V	L	D	E	ALK-6

VIII

VII

30 31 32 10 2 4 6 8 15

A	I	N	F	Q	R	-	D	A	F	L	R	I	D	M	Y	A	M	G	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	E	ACTR-II
A	I	N	F	Q	R	-	D	A	F	L	R	I	D	M	Y	A	M	G	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	E	ACTR-IIIB
R	M	L	E	N	A	E	S	F	K	Q	I	D	V	Y	S	M	A	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	TBR-II	
S	I	N	M	K	H	F	E	S	F	K	R	A	D	I	Y	A	M	G	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	TBR-I/ALK-5
Q	I	R	T	O	C	F	E	S	Y	K	W	T	D	I	M	A	F	G	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	ALK-1
T	I	Q	V	D	C	F	D	S	Y	K	R	V	D	I	M	A	F	G	L	V	L	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	ALK-2
S	L	N	K	N	H	F	Q	P	Y	I	M	A	D	I	Y	S	E	G	L	I	I	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	ALK-3
T	I	N	M	K	H	F	D	S	F	K	C	A	D	I	Y	A	L	G	L	V	Y	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	ALK-4
S	L	N	R	M	H	F	Q	S	Y	I	M	A	D	M	Y	S	E	G	L	I	I	M	E	L	A	S	R	C	T	A	A	D	G	P	V	D	E	Y	M	L	P	F	E	S	ALK-6

X

IX

30 31 32 10 2 4 6 8 15

E	I	G	Q	H	P	S	L	E	D	H	Q	E	V	V	V	H	K	K	K	K	R	R	P	V	L	R	D	Y	W	Q	K	H	A	G	M	A	M	L	C	E	T	I	E	E	C	W	ACTR-II			
E	I	G	Q	H	P	S	L	E	D	H	Q	E	V	V	V	H	K	K	K	K	R	R	P	V	L	R	D	Y	W	Q	K	H	A	G	M	A	M	L	C	E	T	I	E	E	C	W	ACTR-IIIB			
R	V	R	E	N	P	C	V	E	S	M	K	D	N	V	L	R	D	R	G	R	P	P	E	I	I	K	S	F	W	L	M	H	Q	I	Q	M	V	C	E	I	L	T	E	C	W	TBR-II				
L	V	P	S	D	P	S	S	V	E	E	M	R	K	V	V	C	E	Q	K	L	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	TBR-I/ALK-5
V	V	P	H	D	P	S	S	F	E	D	M	R	K	V	V	C	V	D	Q	Q	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	ALK-1
V	V	P	H	D	P	S	S	F	E	D	M	R	K	V	V	C	V	D	Q	Q	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	ALK-2
M	V	P	S	D	P	S	S	F	E	D	M	R	K	V	V	C	V	D	Q	Q	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	ALK-3
L	V	P	S	D	P	S	S	F	E	D	M	R	K	V	V	C	V	D	Q	Q	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	ALK-4
L	V	P	S	D	P	S	S	F	E	D	M	R	K	V	V	C	V	D	Q	Q	R	P	P	I	I	P	H	R	L	A	A	D	P	V	L	S	G	L	R	V	M	A	K	I	M	R	E	C	W	ALK-6

Fig. 3 contd.





34-96

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36-106

211 - 72  
211 - 72

41-15

5.

Majority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Majority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Majority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Majority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Majority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Majority	1	2	3	4	5																																																																																															

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**Fig. 5.**